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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/869,941	01/04/2002	Wendell B. Colson	4686/00004	4413
22910	7590	05/18/2006		
BANNER & WITCOFF, LTD. 28 STATE STREET 28th FLOOR BOSTON, MA 02109-9601			EXAMINER BEFUMO, JENNA LEIGH	
			ART UNIT 1771	PAPER NUMBER

DATE MAILED: 05/18/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 09/869,941	Applicant(s) COLSON ET AL.	
	Examiner Jenna-Leigh Befumo	Art Unit 1771	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 27 March 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 158-199 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 158-199 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. In view of the Appeal Brief filed on March 27, 2006, PROSECUTION IS HEREBY REOPENED. New grounds of rejection are set forth below.

To avoid abandonment of the application, appellant must exercise one of the following two options:

(1) file a reply under 37 CFR 1.111 (if this Office action is non-final) or a reply under 37 CFR 1.113 (if this Office action is final); or,

(2) initiate a new appeal by filing a notice of appeal under 37 CFR 41.31 followed by an appeal brief under 37 CFR 41.37. The previously paid notice of appeal fee and appeal brief fee can be applied to the new appeal. If, however, the appeal fees set forth in 37 CFR 41.20 have been increased since they were previously paid, then appellant must pay the difference between the increased fees and the amount previously paid.

A Supervisory Patent Examiner (SPE) has approved of reopening prosecution by signing below.

Response to Amendment

2. The Amendment submitted on October 26, 2005, has been entered. Claims 1 – 157 have been cancelled. Claim 158 has been amended. Therefore, the pending claims are 158 – 199.

3. The 35 USC 102 and 35 USC 103 rejections based on Bascom (3,582,443) are withdrawn since the adhesive material is not applied to the first set of parallel yarns in a random manner.

4. The 35 USC 102 rejection based on Harwood (2,900,980) are withdrawn since the adhesive material is not applied to the first set of parallel yarns in a random manner.

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5. The 35 USC 103 rejection based on Hartstein (3,591,434) in view of Bodford et al. (5,342,469) is withdrawn since the adhesive layer taught by Bodford et al. is made up of an array of substantially linear filaments which would not necessarily form a strong bond with between two layers of parallel yarns disclosed by Hartstein because the substantially linear adhesive filaments would be running parallel to one of the sets of parallel yarns. Hence, the yarns running parallel to the adhesive filaments would not all be in contact with the adhesive filaments. However, a new rejection based on Hartstein is set forth below.

Claim Rejections - 35 USC § 102

6. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

7. Claims 158 – 161, 164 – 166, 169, 170, 172 – 176, 178, 179, 186 – 188, and 192 – 199 are rejected under 35 U.S.C. 102(b) as being anticipated by Sabee (4,910,064).

Sabee discloses a nonwoven web comprising a number of substantially parallel continuous filaments that are stabilized by meltblown fibers (abstract). The meltblown fibers are deposited on one side of the continuous filaments and two or more parallel webs may be cross laid and laminated to each other (abstract). The meltblown fibers lock the parallel filaments in a parallel, linearly oriented laydown pattern (column 5, lines 30 – 35).

Sabee describes that the melt blown layer can have a basis weight as low as about 3 to 5% by weight of the final web (column 5, lines 62 – 68). The webs can be produced with melt blown layers having a basis weight as low as 1 to 3 gsm (column 23, lines 25 – 28). Also, the fibers of the meltblown web have a fiber diameter of about 0.5 to 10 microns (column 15, lines 10 – 12). Sabee also discloses that various materials can be used as the adhesive meltblown

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layer including various thermoplastic polymers, such as polyesters, polyolefins, and polyvinyls or mixtures and copolymers thereof (column 7, lines 25 – 35). Further, the adhesive material can be made from a hot melt adhesive, pressure sensitive adhesive, or a visco-elastic hot melt adhesive (column 7, lines 35 – 45).

The continuous parallel filaments can be made from various materials, natural or manmade, ranging from textile yarns of cotton, rayon, hemp, or multifilament yarns of rayon or nylon (column 7, lines 53 – 65). Also thermoplastic polymers, such as polyamides, polyolefins, or polyesters can be used to produce continuous filaments, as well as other filament forming materials such as carbon fibers (column 8, lines 1 – 20). The webs of substantially parallel fibers can be combines together to produce crosslaid webs wherein the parallel yarns are at an angle of 0 to 90° to each other (column 8, lines 20 – 35). The continuous filaments of a layer can be same or different from the continuous filaments of another layer or the continuous filaments in a single layer may be different from one another (column 8, lines 40 – 45). The filaments spacing can vary from wide spaces between the filaments to webs where the filaments are so dense they touch one another (column 10, lines 38 – 41).

The crosslaid web is produced by bonding the individual layers together, however the continuous filaments are not bonded at their cross-over points, but rather the meltblown fibers bond to the continuous filaments along the entire length of the filaments and then bond to other random locations on adjacent filaments in the same or adjacent layers (column 10, lines 42 – 55). Further, Sabee discloses that the webs of continuous filaments bonded together by the layer of meltblown webs can be bonded together with the melt blown layers of the crosslaid layers facing each other (column 19, lines 42 – 60). Thus, the bonded web would include two sets of parallel

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filaments at an angle of between 0 and 90° to each other. The layers are bonded together by randomly applied meltblown fibers which when assembled together form a discontinuous, random adhesive layer between the two sets of parallel filaments. The composite material can be made into finished products with basis weight of between 3 and 60gsm and heavier fabrics having a basis weight between 60 and 2000 gsm (column 11, lines 58 – 65). Thus, claims 158 – 161, 164 – 166, 169, 170, 172 – 176, 178, 179, 186 – 188, and 192 – 199 are anticipated by Sabee.

Claim Rejections - 35 USC § 103

8. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

9. Claims 158 – 167, 169 – 189, and 192 – 199 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hartstein in view of Jarrell et al. (5,294,258).

Hartstein discloses a nonwoven fabric comprising a first set of yarns laid parallel to one another, and a second set of parallel yarns cross-laid to the first set of yarns (abstract). The yarns are bonded together by a thermoplastic film layer which is located between the two sets of yarns to form a bi-axial laminated nonwoven fabric (abstract). The yarns can be made from flexible materials such as rayon, synthetic fibers, cotton, or natural fibers, and the first set of yarns can be a different material from the second set of yarns (column 1, lines 50 – 54). The two sets of yarns are laid at an angle of approximately 90° to each other, with one set of yarns running in the warp direction and the other set of yarns running in the weft direction (column 4, lines 23 – 24). Thus, the yarns are set at an angle of about 89.7° to each other. The fabric may be used as blinds, carpet backing, reinforcement materials, placemats, or wall paper (column 4, lines 32 – 36).

Hartstein fails to teach using a discontinuous layer as the adhesive layer between the two sets of yarns. Jarrell et al. is drawn to a composite fabric produced by bonding together two fibrous webs with an adhesive layer (abstract). Jarrell et al. discloses that two woven or nonwoven layers are bonded together by a porous, adhesive matrix comprising a random fibrous adhesive pattern (abstract). Using a fibrous adhesive matrix to bond the web layers together provides a process for bonding together fabric layers without the loss of hand, flexibility, breathability or appearance (column 3, lines 30 – 35). The fibrous random adhesive matrix produces a large number of small bonding sites (column 3, lines 40 – 43). Further, Jarrell et al. discloses that the adhesive is added in an amount sufficient enough to fully adhere the composite layers as well as have good flexibility and good hand (column 3, lines 50 – 60). The adhesive layer is applied in a light coating of about 0.075 to about 28 gsm (column 3, lines 60 – 65). Also, Jarrell et al. disclose that the adhesive material can be produced using any suitable adhesive material including thermoplastic adhesives, reactive adhesives, high performance adhesives, and hot melt adhesives (column 5, lines 18 – 40). Thus, it would have been obvious to one of ordinary skill in the art to substitute the adhesive layer taught by Jarrell et al. for the adhesive film layer taught by Hartstein to produce a finished product which is breathable and flexible and has good hand. Thus, claims 158 – 160, 164 – 166, 169, 170, 172, 173, 175, 178 – 180, 186 – 188, and 192 – 194 are rejected.

Further, while Jarrell et al. doesn't teach the thickness of the adhesive layer or the amount of adhesive based on the weight of the first layer or both layers bonded to the adhesive, Jarrell et al. discloses that a low add-on weight coating of adhesive material is preferred to maintain the flexibility of the textile layers and permeability of the composite material. However, it would

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have been obvious to one having ordinary skill in the art at the time the invention was made to choose the adhesive amount and adhesive thickness, since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. *In re Aller*, 220 F.2d 454, 105 USPQ 233 (CCPA 1955). One of ordinary skill would be motivated to choose an thin, low add-on amount of adhesive which provides the laminate with sufficient bond strength and dimensional stability, without adding too much adhesive so that the adhesive makes the fabric too stiff and inflexible for in uses where flexibility is required. Therefore, claims 161, 171, 176, and 177 are rejected.

Additionally, Jarrell et al. discloses that any known type of thermoplastic hot melt adhesive material can be used as the adhesive layer. Thus, it would have been obvious to one having ordinary skill in the art to choose the claimed adhesive materials to use as the adhesive layer between the two sets of yarns, since it has been held to be within the general skill of a worker in the art to select a known material on the basis of its suitability for the intended use. *In re Leshin*, 125 USPQ 416. One of ordinary skill in the art would be motivated to choose materials which can easily be placed between the two sets of yarns, so that the adhesive material will produce a strong bond between the two yarns without using too much adhesive material that the laminate becomes too stiff or heavy and loses the feel of a textile material. Thus, claim 174 is rejected.

Further, while Hartstein discloses that the yarns are spaced in accordance to the desired fabric density (column 2, lines 49 – 50), Hartstein fails to teach the range of fabric density for the warp and weft yarns. Hartstein discloses that the fabric can be used for various end products

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which would require different levels of coverage as well as having different strength and reinforcement requirements.

However, it would have been obvious to one having ordinary skill in the art at the time the invention was made to choose a warp and weft density between 40 and 100 yarns/inch, since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art, as set forth above. One of ordinary skill in the art would choose the claimed warp and weft density to produce a reinforcement fabric with high strength properties and stability properties in both the warp and weft direction. Also, one of ordinary skill in the art would choose a high warp and weft density to produce a fabric with a high cover factor to make the fabric less see through when used in applications such as wall paper or blinds. Therefore, claims 181 – 183 are rejected.

Also, it would have been obvious to one of ordinary skill in the art to optimize the weight of the first yarns to produce a fabric with good strength properties that is lightweight and can be used in various end use applications. Therefore, claims 162 and 163 are rejected.

While Hartstein discloses that various fiber materials can be used in the nonwoven fabric, including inorganic fibers, synthetic fibers, and natural fibers, Hartstein fails to teach using metal fibers. However, it would have been obvious to one having ordinary skill in the art to choose various types of metal fibers, since it has been held to be within the general skill of a worker in the art to select a known material on the basis of its suitability for the intended use. *In re Leshin*, 125 USPQ 416. One of ordinary skill in the art would be motivated to choose metal fibers as a reinforcement material with good resistance properties and strength properties. Therefore, claims 167 and 189 are rejected.

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Finally, Hartstein discloses that the fabric can be used for various end products which would require different levels of coverage as well as having different strength and reinforcement requirements. Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to choose the claimed denier or yarn size, since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. *In re Aller*, 220 F.2d 454, 105 USPQ 233 (CCPA 1955). One of ordinary skill in the art would optimize the yarn size to produce a reinforcement fabric with good strength properties and stability properties in both the warp and weft direction based on the desired use of the laminated material. Therefore, claims 184, 185, and 195 – 199 are rejected.

10. Claims 162, 163, 167, 168, 177, 180 – 185, and 189 – 191 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sabee.

The features of Sabee have been set forth above. Sabee discloses that the weight of the fabric can range from 3 to 2000 gsm and the adhesive can be as low as 3 to 5% of the weight of the finished fabric and as low as 1 to 3 gsm. However, Sabee fails to teach using a first layer having a basis weight of 50 gsm with an adhesive layer of 2 to 15 gsm or 5 to 10 gsm. However, based on the teaching of Sabee it would have been obvious to one of ordinary skill in the art to optimize the weight of the first yarns to produce a fabric with good strength properties that is lightweight and can be used in various end use applications. Therefore, claims 162 and 163 are rejected.

Further, based on the amounts of adhesive applied and the thickness of the meltblown fibers, having diameters of 0.5 to 10 microns, set forth above, it would have been obvious to one

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having ordinary skill in the art at the time the invention was made to choose the adhesive amount and adhesive thickness, since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. *In re Aller*, 220 F.2d 454, 105 USPQ 233 (CCPA 1955). One of ordinary skill would be motivated to choose an thin, low add-on amount of adhesive which provides the laminate with sufficient bond strength and dimensional stability, without adding too much adhesive so that the adhesive makes the fabric too stiff and inflexible for in uses where flexibility is required.

Therefore, claims 171 and 177 are rejected.

While Sabee discloses that various fiber materials can be used in the nonwoven fabric, including inorganic fibers, synthetic fibers, and natural fibers, Sabee fails to teach using metal fibers. However, it would have been obvious to one having ordinary skill in the art to choose various types of metal fibers, since it has been held to be within the general skill of a worker in the art to select a known material on the basis of its suitability for the intended use. *In re Leshin*, 125 USPQ 416. One of ordinary skill in the art would be motivated to choose metal fibers as a reinforcement material with good resistance properties and strength properties. Therefore, claims 167 and 189 are rejected.

Additionally, Sabee discloses that various spacings can be used to produce the parallel filament yarns, however, Sabee fails to specific yarn densities for the parallel filaments. Hence, it would have been obvious to one having ordinary skill in the art at the time the invention was made to choose a warp and weft density between 40 and 100 yarns/inch, since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art, as set forth above. One of

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ordinary skill in the art would choose the claimed warp and weft density to produce a reinforcement fabric with high strength properties and stability properties in both the warp and weft direction. Also, one of ordinary skill in the art would choose a high warp and weft density to produce a fabric with a high cover factor to make the fabric less see through when used in applications such as wall paper or blinds. Therefore, claims 180 – 183 are rejected.

Finally, Sabee also discloses that the fabric can be used for various end products which would require different levels of coverage as well as having different strength and reinforcement requirements. Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to choose the claimed denier or yarn size, since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. *In re Aller*, 220 F.2d 454, 105 USPQ 233 (CCPA 1955). One of ordinary skill in the art would optimize the yarn size to produce a reinforcement fabric with good strength properties and stability properties in both the warp and weft direction based on the desired use of the laminated material. Therefore, claims 184, and 185 are rejected.

11. Claims 168, 190, and 191 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hartstein and Jarrell et al., as applied to claims 164 and 186 above, and in further view of Pittman (3,753,842).

Claims 168, 190, and 191 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sabee as applied to claims 164 and 186 above, and in further view of Pittman.

The features of both Hartstein and Sabee have been set forth above. While Hartstein discloses that synthetic fibers can be used in the warp and weft yarns, Hartstein fails to teach

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what types of synthetic fibers can be used. Further, Sabee discloses that various materials can be used to make the parallel yarns including thermoplastic filaments and natural fibers. Pittman is drawn to bi-axial laminated nonwoven fabrics. Pittman discloses that synthetic fibers such as rayon, nylon, polyester, and glass can be used to produce the nonwoven fabric (column 2, lines 41 – 53). Therefore, it would have been obvious to one of ordinary skill in the art to use the types of synthetic fibers taught by Pittman in the nonwoven fabric taught by Hartstein or Sabee, since Hartstein or Sabee suggests that various fiber materials can be used to produce the nonwoven fabrics. Further, the nylon, polyester, and glass fibers, would give the final product different strength, flexibility and stability properties than natural fibers. Therefore, claims 168, 190, and 191 are rejected.

Conclusion

12. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

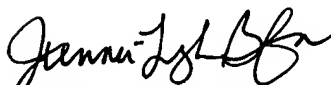
A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

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Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jenna-Leigh Befumo whose telephone number is (571) 272-1472. The examiner can normally be reached on Monday - Friday (8:00 - 5:30).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Terrel Morris can be reached on (571) 272-1478. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


Jenna-Leigh Befumo
May 14, 2006


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